

## **REMARKS**

Initially, applicant would like to thank Examiners Krause and Fenstermacher for the helpful and courteous telephonic interviews they conducted with applicant's representative on May 9, 2006, in conjunction with the present application and the Office Action of March 7, 2006. Following an initial interview with Examiner Krause, applicant's representative faxed a draft of proposed claim amendments to the Examiner and requested him to review the same. In a subsequent interview – involving Examiners Krause and Fenstermacher, and applicant's representative – the Examiners indicated that they have reviewed the draft of the proposed claim amendments; and specified that claims 8-9, as amended, are found to overcome 35 USC §112, second paragraph rejection, and that claims 1 and 4, as amended, are found to overcome the prior art references applied in the case. Applicant thanks the Examiners for reviewing the draft amendment, providing feedback on patentability of claims and for extending the courtesy during these telephone interviews.

Upon entry of the present Amendment-B, the claims in the application are claims 1-11, of which claims 1 and 4 are independent. Claim 1, 4, 8 and 9 have been amended, and new claims 10 and 11 have been added by the present amendment.

The above-identified Office Action has been reviewed, the applied references carefully considered, and the Examiner's comments, including clarification during the interview, carefully weighed. In view thereof, the present Amendment-B is submitted. It is contended that by the present amendment, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

In the above amendments: claim 1 has been amended by expressly defining that vibratory

shafts, which are stored within a roll and are arranged symmetrically across a rotation axis of the roll, and are rotated in a same direction during operation of the vibratory mechanism;

Claim 4 has been amended by expressly defining that the first vibratory shaft and the second vibratory shaft are rotated in the same direction during operation of the mechanism.

Each of claims 8 and 9 has been amended to define that the fixed eccentric weight fixed to one of the vibratory shafts is heavier than the rotatable eccentric weight rotatably attached to the one vibratory shafts, and the fixed eccentric weight fixed to another of the vibratory shafts is lighter than the rotatable eccentric weight rotatably attached to the other vibratory shaft. Claims 8 and 9 have been amended to particularly point out and distinctly claim the subject matter which the applicant regards as his invention.

New claims 10 and 11, similar to claims 8 and 9, respectively, have been added to define additional aspects to claims 1 and 4, respectively.

Applicant respectfully submits that the above amendments including new claims are fully supported by the original disclosure including the drawings, and that no new matter is introduced into the application by the present amendment. For example, with reference to amendments to claims 1 and 4, paragraph 93 of the specification of the present application specifies that, "...the present embodiment, respective vibratory shafts 24 and 25 synchronously rotate in the same direction. Thus, the direction of the vibratory force to be caused from the vibratory shaft 24 becomes the same direction as the direction of the vibratory force to be caused from the vibratory shaft 25.....".

#### **Claim Rejections – 35 USC §112**

At item 2 of the Office Action (page 2), the Examiner rejected claims 8 and 9 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim

the subject matter which applicant regard as the invention.

*Applicant's response:*

In light of the present amendments, applicant requests reconsideration and withdrawal of the rejection of claims 8 and 9.

**Claim Rejections – 35 USC §102**

1. At item 4 of the Office Action (page 3), the Examiner rejected claims 1-7 under 35 USC §102 (b) as being anticipated by Riedl (US 5,010,778).

*Applicant's response:*

Upon careful consideration and in light of the above amendments, applicant respectfully submits that the rejection is overcome, and that each of claims 1-7 is patentably distinct over the disclosure of Reidl for several reasons, including those given below.

For example, applicant notes that, Reidl discloses a vibrator having a housing 1 in which two interlocking, counterrotating unbalanced shafts 2 and 3 are mounted axially parallel to one another; that each unbalanced shaft 2, 3 is provided on both sides of a hub 7 thereof with split imbalances or eccentrics 15; and that each eccentric 15 includes two imbalance or eccentric parts 15a fixedly connected to outer sides of the unbalanced shaft 2, 3, and an imbalance or eccentric part 15b rotatably mounted on the unbalanced shaft 2, 3 and disposed between the two fixed eccentric parts 15a (col. 2, lines 47-64, col. 3, lines 29-35, Fig. 1).

Further, Reidl discloses that each of the unbalanced shafts 2, 3 is provided with a stop pin 16 that cooperates with counter abutment faces of the eccentric parts 15a and limits the rotatability of the eccentric part 15b to approximately 180° relative to the eccentric part 15a, and that between these extreme positions, the eccentric part 15b is freely rotatable relative to the eccentric parts 15a,

so that between the eccentric part 15b and the eccentric parts 15a only a single drag connection exists which is imparted by the stop pin 16. In one extreme position, as Reidl discloses, the central eccentric part 15b, is shoved in between the eccentric parts 15a and thereby increases the effective eccentric mass of the eccentric 15, whereas in the other extreme position, the eccentric part 15b is rotated out from between the eccentric parts 15a and thus reduces the effective eccentric mass (col. 3, lines 35-51, Fig. 1).

More significantly, Reidl disclosed that since the unbalanced shafts 2 and 3 rotate in opposite directions due to coupling thereof via gear wheels 5 and 6, the eccentrics 15 each having the same setting with regard to the relative position of their central eccentric part 15b relative to the two outer eccentric parts 15a, the eccentric parts 15b are all either rotated in between the eccentric parts 15a or are rotated out from between them, so that the eccentrics 15 relative to one another also always have the same effective mass, i.e. depending upon the direction of shaft rotation, either the maximum value or the minimum value.

Thus, since in the system of Reidl, the unbalanced shafts 2, 3 are counterrotating, or rotate in opposite directions Reidl teaches away from the claimed invention requiring shafts that rotate in a same direction during the operation of the vibration mechanism, as recited in each of independent claims 1 and 4, as amended.

Also, Reidl fails to disclose that the roll vibrates in a direction tangential to the circumference of the roll when vibratory shafts rotate in a reverse direction, as required by claim 1.

With reference to claim 2, applicant respectfully submits that, Reidl fails to disclose limitation of claim 2 because in his system, as appears from his Figs. 4 and 5, the total eccentric moment around the vibratory shafts 2, 3 is obtained by subtracting an eccentric moment of the rotatable eccentric part 15b from an eccentric moment of the fixed eccentric part 15a.

Whereas, in the claimed invention: when the first vibratory shaft and the second vibratory shaft are rotated in the one direction, the total eccentric moment around the first vibratory shaft is obtained by subtracting an eccentric moment of the fixed eccentric weight from an eccentric moment of the rotatable eccentric weight and the total eccentric moment around the second vibratory shaft is obtained by subtracting an eccentric moment of the rotatable eccentric weight from an eccentric moment of the fixed eccentric weight; and when the first vibratory shaft and the second vibratory shaft are rotated in the reverse direction, the total eccentric moment around the first vibratory shaft is obtained by adding an eccentric moment of the fixed eccentric weight to an eccentric moment of the rotatable eccentric weight and the total eccentric moment around the second vibratory shaft is obtained by adding an eccentric moment of the rotatable eccentric weight to an eccentric moment of the fixed eccentric weight, as required by claim 2.

With reference to claim 3, since in the system of Reidl, angular position of each of the fixed eccentric parts 15a is a same position, he fails to disclose the eccentric moment around the first vibratory shaft due to the fixed eccentric weight is substantially the same as the eccentric moment around the second vibratory shaft of the rotatable eccentric weight, and the eccentric moment around the first vibratory shaft due to the rotatable eccentric weight is substantially the same as the eccentric moment around the second vibratory shaft of the fixed eccentric weight, as required by claim 3.

With reference to claims 5-7, applicant respectfully submits that Reidl fails disclose the total combination of each of these claims for the reasons provided in relation to claims 1 and 4.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claims 1-7 under 35 USC §102(b).

**Claim Rejections – 35 USC §103**

1. At item 6 of the Office Action (page 7), the Examiner rejected claim 7 under 35 USC §103 (a) as being unpatentable over Riedl and Fuchigami (US 4,108,009) or Orzal (US 4,568,218).

*Applicant's response:*

Upon careful consideration and in light of the above amendments, applicant respectfully submits that the rejection is overcome, and that claim 7 is patentably distinct over the applied references for the reasons provided in relation to claim 1 herein above, which are not overcome by addition teaching of Fuchigami and/or Orzal.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claim 7 under 35 USC §103(a).

2. At item 7 of the Office Action (page 8), the Examiner rejected claims 8 and 9 under 35 USC §103 (a) as being unpatentable over Riedl in view of Balz (US 4,461,122).

*Applicant's response:*

Upon careful consideration and in light of the above amendments, applicant respectfully submits that the rejection is overcome, and that claims 8 and 9 are patentably distinct over the applied references for the reasons provided in relation to claims 1 and 4 herein above, which are not overcome by addition teachings of Balz, and for the reasons given below.

For example, a finishing machine 10 of Balz includes a centrally mounted vertical shaft 32 having top and bottom discs 42 and 52, respectively bearing fixed major weights 44, 54, and free or movable minor weights 46, 56 rotatably attached to the vertical shaft 32. However he fails to disclose specifics of the fixed major and movable minor weights, and although it appears

that each of fixed weight has similar dimensions and/or weight, and that each fixed weight is heavier than the movable weight. Thus, combining major/minor weights of Balz with the Reidl vibrator would result in having same fixed weight for each of the vibratory shafts. Such combination teaches away from the claimed invention which requires fixed eccentric weight fixed to one of the vibratory shafts is heavier than the rotatable eccentric weight rotatably attached to the one vibratory shafts, and the fixed eccentric weight fixed to another of the vibratory shafts is lighter than the rotatable eccentric weight rotatably attached to the other vibratory shaft, as recited in each of claims 8 and 9.

Thus, applicant respectfully submits that the Examiner fails to establish prima facie case of obviousness for rejection of claims 8 and 9, and therefore, each of these claims is patentably distinct over the applied references.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claims 8 and 9 under 35 USC §103(a).

#### Other Matters

The additional references cited by the Examiner on the form PTO-892 included with the Office Action – US Patents: 3,339,422 to Petrin; 4,550,622 to La Bonte et al.; 3,920,222 to Brander; and 3,598,029 to Paramythioti; and US Application: 2004/0003671 to Fervers et al. – have been considered by applicant. However, applicant respectfully submits that the additional references fail to overcome the deficiencies of the applied references, as discussed in relation to the present claims hereinabove.

## **Conclusion**

In conclusion, applicant has overcome the Examiner's objection and rejections as presented in the Office Action; and moreover, applicant has considered all of the references of record, and it is respectfully submitted that the invention as defined by each of present claims 1-11 is patentably distinct thereover.

Applicant respectfully submits that all of the above amendments including the new claims are fully supported by the original application. Applicant also respectfully submits that the above amendments do not introduce any new matter into the application.

The application is now believed to be in condition for allowance, and a notice to this effect is earnestly solicited.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that he telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable reconsideration is respectfully requested.

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Respectfully submitted,



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